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2001-2010: Decade to Roll Back Malaria in Developing Countries, particularly in Africa

2001-2010: Decade to Roll Back Malaria in Developing Countries, particularly in Africa — progress on implementation of General Assembly resolution 57/294

Report of the Secretary-General

Summary

The present report, prepared by the World Health Organization, provides an update on the status of implementation of recommendations made in General Assembly resolution 57/294 on the Decade to Roll Back Malaria in Developing Countries, particularly in Africa. The report, which draws significantly on the Africa Malaria Report — 2003, published in April 2003 by the World Health Organization and the United Nations Children's Fund with contributions from the World Bank, reviews the state of resource mobilization and financing of malaria control, provides examples of successful ways in which malaria control has been incorporated into sector-wide approaches for health and development planning and describes efforts to strengthen the Roll Back Malaria partnership. The report concludes by proposing a number of recommendations for the consideration of the General Assembly to accelerate the implementation of malaria control activities.

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I. Introduction

1. In its resolution 57/294: 2001-2010: Decade to Roll Back Malaria in Developing Countries, particularly in Africa, the General Assembly called for support for the recommendations contained in the report of the Secretary-General (A/57/123). In summary, these were (a) a call for Member States, particularly those that have experienced the burden of malaria and managed to control or eliminate it, to join in solidarity with malaria-endemic countries, (b) to reinforce the intent of the Abuja Declaration and encourage malaria-endemic countries to eliminate or substantially reduce taxes and tariffs on mosquito nets, (c) advocate continued and increased support for the Global Fund to Fight AIDS, Tuberculosis and Malaria, (d) a call for malaria-endemic countries to address the malaria burden through all means available and (e) a call on United Nations agencies to renew their commitment to the Roll Back Malaria Initiative and its goals.

2. The resolution also appealed to the international community, United Nations bodies, international and regional organizations and non-governmental organizations to allocate substantial new resources, including through the Global Fund to Fight AIDS, Tuberculosis and Malaria, particularly in Africa, with a view to enabling them to implement fully the plan of action adopted in Abuja for the Roll Back Malaria Initiative (RBM). In addition, it called for the international community and donor Governments to encourage and facilitate the transfer of needed technology to developing countries, particularly in Africa, on favourable terms, for the production of long-lasting insecticide-treated nets and to find ways to increase the availability of the new range of artemisinin-based combination drugs for multi-drug resistant malaria.

3. The resolution also urged the World Health Organization (WHO) and its partners to provide the necessary support for ongoing measures to combat malaria in developing countries, particularly in Africa, and to provide the assistance necessary for African States to meet their objectives. At the same time, the resolution called for joint and comprehensive efforts between Africa and the international community to ensure that by 2005 the targets established at Abuja in 2001 are met. Endemic countries were also called upon to ensure that measures to reduce the risk of malaria transmission, including source reduction and environmental management, are included in development planning and activities. The Secretary-General, in close collaboration with the Director General of WHO, was also requested to conduct in 2005 an evaluation of the measures taken and progress towards the achievement of the mid-term targets related to the overall goals of the Decade and to report to the General Assembly at its sixtieth session.

4. The World Health Organization and UNICEF jointly published a report entitled "The Africa Malaria Report — 2003", which was released on Africa Malaria Day, 25 April 2003 in a coordinated launch in Nairobi, Kenya, Washington, the United States of America and London, the United Kingdom. The report, the first of its kind, took stock of the malaria situation and of continuing efforts to tackle the disease in Africa and is based on a review of the best information available to WHO and UNICEF at the end of 2002. The World Bank contributed the chapter on resource mobilization and financing. The present report draws substantially on that report and on the contributions of many RBM partners.

II. Resource mobilization and financing for malaria control

5. Since the inception of Roll Back Malaria in 1998, and particularly since the Abuja Summit in 2000, malaria prevention and control have started once again to become domestic and international priorities. International spending for malaria has increased at least twofold since 1998, and this does not even include the complementary financing of a range of primary health care services (such as reproductive health and the integrated management of childhood illness) that also have an impact on malaria.

6. In 2002, approximately US$ 200 million was earmarked for malaria control worldwide, compared with an estimated US$ 60 million in 1998. Of the total in 2002, about US$ 70-80 million can be attributed to domestic commitments.

7. **Resources required to roll back malaria**: A broad resource base is essential to reduce the burden of malaria in Africa. Critical resources include financial and human resources, institutional know-how, political commitment, and community support. These resources are located in a diverse set of institutions including governments, non-governmental organizations (NGOs), the international community, the private sector and civil society.

8. Harnessing and coordinating these resources require the development of consensus among potential partners and the formation of effective working relationships. The establishment of partnerships working towards a common goal is an integral part of the strategy to roll back malaria.

9. The Abuja Declaration of 2000 called for the allocation of new resources — at least US$ 1 billion per year — from African countries and their development partners. Although more resources are available for malaria control today than 3 years ago, a significantly greater investment is needed to support those fighting malaria on the ground. In 2000 and 2001, African heads of State pledged to allocate the resources required for sustained implementation of planned RBM actions, including significant increases to country health budgets. However, in order for additional investments to have an impact on malaria, countries must have mechanisms by which resources can be translated into effective programmes that reach those most in need. This requires functioning health systems that allocate appropriate resources to malaria programmes for recurrent costs and essential commodities (such as antimalarial drugs), administrative systems that ensure timeliness, regularity and accountability in the flow of funds, infrastructure and supplies for delivering services, a skilled and motivated work force, and sufficient organizational capacity to manage the system. In addition, an enabling environment is required to stimulate private sector growth to provide commodities for malaria prevention and treatment, such as insecticide-treated nets and antimalarial drugs.

10. **Domestic resources**: It is not possible to ascertain accurately the amount of government resources supporting malaria control. Malaria control today is financed through a range of complementary programmes that all have an impact on malaria. Public health activities, such as the integrated management of childhood illness (IMCI), reproductive health programmes and other primary health care services, all have direct positive impacts on malaria but are not recorded as expenditures attributed to malaria-control programmes. In addition, many malaria costs are covered by general budgets for health facility staff or drugs. In countries with a heavy malaria burden, the disease may account for as much as 25-40 per cent of

outpatient visits and up to 50 per cent of inpatient admissions, generating costs that may amount to as much as 40 per cent of public health expenditure.

11. Continued fiscal shortfalls faced by those working on malaria suggest that, despite progress, government resource allocations for malaria are still insufficient. Governments in African countries generally support public-sector salaries without providing resources for the other recurrent expenditures, such as antimalarial drugs, needed to deliver services. In addition, although the cost of achieving the scale of action required may be significant, human resources are required for expenditures to have an impact on reducing the burden of malaria. In many African countries today, however, shortages of trained personnel impede malaria control more than the lack of financial resources.

12. **Most people in Africa south of the Sahara pay out-of-pocket for malaria control**. Overwhelmingly, people in Africa south of the Sahara pay for malaria prevention and treatment through out-of-pocket expenditure. The lack of government resources for malaria prevention and treatment contributes to shifting the burden of expenditure to households. Evidence suggests that most of this expenditure is on pharmaceuticals, the costs of which will further rise with the introduction of new antimalarials made necessary by increasing resistance to current drugs. Measures should be taken to reduce the costs of these drugs, for instance through targeted subsidies.

13. Inevitably, the poorest households will spend a greater proportion of their income on malaria prevention and treatment. Strategies to mitigate the financial burden of malaria — particularly on the poorest households, those least likely to be able to afford the necessary expenditures — should be combined with appropriate communication and behaviour change activities both to reduce the costs of malaria-related commodities and to support appropriate use of those commodities.

14. **Household spending should be directed towards the most effective interventions**: Although household spending on malaria control is very high, it is not necessarily efficient. Most purchasing of malaria-control commodities occurs in the private sector — through local markets and drug vendors, for instance — with the result that individuals receive little guidance and may purchase and use poor-quality, inappropriate, or incomplete interventions. Significant expenditures on mosquito coils and insecticide aerosol sprays have been reported, but while these commodities reduce nuisance mosquitoes, there is little evidence that their use reduces the burden of malaria. Drug vendors may provide little guidance on treatment choice and usually will not encourage the completion of a full course of treatment, contributing to the development of parasite resistance.

15. Communication programmes designed to bring about behaviour change will play an essential role in guiding consumers towards the purchase of malaria-control interventions of demonstrated effectiveness in reducing malaria transmission, such as insecticide-treated materials and antimalarials to which resistance is less common.

16. **Planning for impact**: Several countries are well advanced in forming coalitions between partners that are working towards an agreed plan of action. The process differs from one country to another but some common themes are evident. The process usually starts with a situation analysis of the state of health sector development, as well as of the epidemiology of malaria. The analysis also identifies

the resources available to roll back malaria, including the diverse range of stakeholders already involved in malaria control. Formal partnerships are created and a statement of intent issued, indicating what will be achieved in 5 years, and how. Resources are mobilized from partners and systems are set up to monitor achievements in rolling back malaria. Forty African countries have drawn up national strategic plans, and at least 25 countries are ready to implement. Many of these plans have served as the basis for successful proposals to the Global Fund to Fight AIDS, Tuberculosis and Malaria — and some are already receiving funds from this source to support implementation of the plans.

17. **Partnerships with industry are increasing resources for malaria**. The business community is increasingly playing a role in the Roll Back Malaria partnership and providing vital resources and expertise to support malaria control programmes. Partnerships have been forged with the drug industry, companies with major investments in malaria-endemic countries whose workers are at risk from malaria, and manufacturers of nets and insecticides. In addition, companies have provided funds for training and collaborating with young scientists and medical officers to allow them to gain valuable experience in the field.

18. **Understanding resource flows to improve effectiveness of expenditures**. Financial resources are only one part of resource mobilization. African countries and the international community need to place greater emphasis on understanding the flow of resources to actual malaria prevention and control activities. Expenditure analyses that track spending on malaria can elucidate the pathways that allow financing for malaria to overcome administrative bottlenecks and support essential services and commodities required for achieving impact.

19. Efforts to roll back malaria in Ethiopia, for instance, have been hampered by inefficiencies in the flow of scarce resources to malaria prevention and control activities. Total expenditure for malaria control is approximately US$ 10.25 million, or only US$ 0.35 per person at risk, but even these limited resources could have a greater impact on malaria control if they were reaching those most in need.

20. Through a recent malaria expenditure review in Ethiopia, commissioned by Roll Back Malaria, it is clear that different parts of the malaria-control programme are competing for the same scarce resources, leaving little room for transportation, antimalarials, and other recurrent operational costs. For example, public facility-based pharmacies, where patients can obtain drugs free of charge, are often out of stock of essential drugs, forcing patients to purchase drugs at private facilities. In addition, the allocation of funds across the different levels of the health sector that have contact with malaria patients may not be proportional to need.

21. Ethiopia has recently decentralized the delivery of health services but has not yet established sustainable management and financial structures within all levels of the health sector. However, the bottlenecks that impede effective resource flows for malaria have now been identified and malaria control is back on the Government agenda. With increases in management and implementation capacity, Ethiopia will be able to use effectively the approximately US$ 38 million in new financing from the Global Fund to Fight AIDS, Tuberculosis, and Malaria. Further organizational and institutional strengthening, accompanied by political commitment and increased international support, will assist Ethiopia to use new and existing resources to better support effective malaria control measures.

22. Similar reviews of resource flows to malaria control should be undertaken in other countries in Africa south of the Sahara to make better use of existing resources and improve targeting of new resources, so that the impact of both domestic and donor resources can be maximized.

23. **International resources**. Despite the increased level of international financing, the amount of money available in most countries to control malaria is still inadequate. In most countries in Africa, government spending needs to be supported by increased international funding.

24. Although continued financial support from the international community for malaria control is essential, it is equally important for the international community to support countries in developing implementation capacity. For instance, donors should work with countries and the private sector to devise and implement innovative financing schemes — the use of targeting mechanisms, such as vouchers for insecticide-treated nets (ITNs) for instance — to improve financial flows to malaria control on the ground.

III. Use of all means available by malaria-endemic countries to tackle malaria

25. **Sector-wide approaches**. The United Republic of Tanzania is an example of a country where malaria control is integrated into a health sector-wide approach. The World Bank-funded Health Sector Development Programme Project in the United Republic of Tanzania broadly supports the first phase of the Health Sector Reform Programme of the country's Government. Although project financing is not specifically designated as malaria financing, the project's objectives have profound implications for resource mobilization for malaria. A target of reducing the malaria inpatient case-fatality rate for children under 5 from 12.8 per cent (1997) to 8 per cent (2011) has been included as a key indicator of success, and the Government has successfully allocated approximately US$ 10 million for malaria in 2003.

26. The potential flexibility and country ownership of sector-wide approaches (SWAPs) have dramatically changed the resource envelope for malaria in a number of African countries. As of February 2003, at least eight countries in Africa south of the Sahara have prioritized malaria through such approaches. With detailed district-level planning and coordination with sectoral funding cycles and planning meetings, additional resources for malaria prevention and control can be made available while the health sector as a whole is strengthened.

27. **The prioritization of malaria control in debt relief. A reflection of renewed importance**: The Heavily Indebted Poor Countries (HIPC) Initiative is the first international response to provide comprehensive debt relief to the world's poorest, most heavily indebted countries. The 26 countries that entered the HIPC programme, of which most are in Africa south of the Sahara, are saving an average US$ 1.3 billion per year compared with debt payments in 1998. Resources freed from debt are being used to support country-driven poverty-reduction strategies — in the form of Poverty Reduction Strategy Papers (PRSPs), which are developed by national Governments in consultation with civil society.

28. As of January 2003, PRSPs (and Interim PRSPs) in every country in Africa south of the Sahara note malaria as a significant contributor to poverty and stress the

importance of malaria control in their approaches to sustainable development. The prioritization of malaria in these documents will have tangible implications for financing malaria control. For instance, as of 2002, all World Bank activities in countries that have prepared poverty-reduction strategies must respond to the priorities detailed in the strategy. In addition, the Bank has developed Poverty Reduction Support Credits (PRSCs) to directly support implementation of a country's poverty-reduction strategy. Although the process is still relatively new, these resources have already been made available for malaria control in some countries, such as Cameroon.

IV. Next steps for financing malaria control in Africa

29. Countries have demonstrated commitment to RBM by pursuing the country strategic planning process. International expenditure directly financing malaria has risen dramatically, and additional support for malaria through sectoral financing schemes can be mobilized as required. In addition, the Global Fund to Fight AIDS, Tuberculosis and Malaria is an exciting new source for significant direct support for malaria control.

30. Countries should improve domestic health sector investment and management, including improved integration of malaria-control activities into health sector development efforts.

31. Policies that provide a greater resource base for health in general and malaria in particular must be pursued, including policies that promote equity of access to goods and services and facilitate the delivery of quality services at low cost through the private or commercial sector. Public sector linkages with the private sector and NGOs, through contracting out of services for instance, would allow countries to expand significantly the resource envelope for malaria activities.

32. Communications for behaviour change must coincide with resource mobilization activities to improve the efficiency of household spending on malaria prevention and control.

33. A significant portion of the financial burden from malaria falls on households. Though measures must be taken to mitigate the financial impact on the poorest, who are unable to afford such high levels of out-of-pocket expenditure, the prominent role of households in malaria control marks an opportunity as well. If, for instance, household expenditures were made only on appropriate and effective malaria prevention and treatment commodities, current spending could make a significant impact on the malaria burden. Behaviour change communications combined with innovative financing mechanisms would make the most of existing household expenditures.

34. The international community must assist countries and partners in spending increased resources for malaria effectively and demonstrating their impact.

35. Donors should work with Governments to improve management and organizational capacity for monitoring and evaluating resource flows, both human and financial. Existing resources do not always flow to those who need them most. It is essential that Governments respond by prioritizing malaria within their own health sector budgets to maximize the disbursement of domestic and international resources to prevent and control malaria. At the same time, the international

community must assist countries in the efficient and effective spending of available resources for malaria, such as those mobilized through health sector development programmes and the Global Fund. Public health success stories, such as the Onchocerciasis Control Programme and the polio eradication campaign, have depended on the combination of country commitment and international support translating into impact on the ground. There is good reason to believe that similar progress can be achieved in malaria.

V. Renewed commitment of United Nations agencies and others

36. The Roll Back Malaria partnership was launched in 1998 by the World Health Organization, the World Bank, UNICEF and the United Nations Development Programme, but rapidly developed to include malaria-endemic countries, non-governmental organizations, representatives of the commercial and industrial sector and other partners.

37. Following an internal review and an external evaluation in 2002, steps were taken to strengthen the partnership and to restructure the secretariat for the partnership. At the same time, a new Malaria Control Department was established within WHO to lead the WHO contribution to the Roll Back Malaria partnership.

38. The restructured RBM partnership secretariat (RBM) will be primarily responsible for supporting the scaling-up operation of the RBM partnership, providing secretariat support to RBM partnership working groups, networking at different levels and linking with other health programs. For the first time partners are developing joint work plans and creating combined country support teams to intensify action. In addition the secretariat is identifying new sources of finance and methods to increase efficient use of available funds earmarked for malaria control at country level. The secretariat is also establishing systems that will enable more effective monitoring of the activities and impact of the partnership.

39. An RBM Partnership Board has been established to oversee, through its secretariat, the work of the partnership at large and to expand the number of partners. The RBM Partnership Board composition brings together all constituencies concerned with scaling-up malaria-control efforts at the country level.

VI. Taxes and tariffs on mosquito nets — one indication of political commitment

40. The cost of insecticide-treated nets (ITNs) is a barrier to their widespread use. As one element in reducing prices, the Abuja Declaration committed Governments to "reduce or waive taxes and tariffs for nets and materials, insecticides, antimalarial drugs and other recommended goods and services that are needed for malaria control strategies". This policy of rationalizing taxes and tariffs is anticipated to contribute to lower prices, so that more people can afford ITNs and stimulate the growth of the commercial market for ITNs. The long-term vision for RBM is a vibrant and competitive commercial sector supported by a functional public-private partnership for making nets and insecticides accessible and affordable to populations at risk of malaria infection, especially those groups at highest risk for severe malaria.

41. Eighteen countries have now reduced or eliminated taxes and tariffs on mosquito nets. Two countries (Tanzania and Zimbabwe) had begun to reduce taxes and tariffs immediately prior to the Abuja summit in April 2000, four countries made changes prior to Africa Malaria Day 2001, and a further twelve countries had made progress by Africa Malaria Day 2002. Within the past year, the Governments of Mali and Madagascar have taken additional steps to remove taxes related to insecticide-treated mosquito nets and insecticide treatment products. Time-limited changes in tax or tariff regimes can be introduced through informal agreements between health and finance ministries, but more permanent arrangements normally require national legislation.

42. Thirty malaria-endemic countries in Africa have yet to provide a clear indication that they have eliminated or reduced taxes and tariffs on mosquito nets and insecticide, and this impedes the wide scale utilization of this very effective malaria-prevention tool by the most vulnerable population groups in these countries. The elimination of taxes and tariffs is one very tangible and relatively easy to achieve indication of political commitment to malaria control.

VII. Progress towards Abuja Goals

43. The 2000 Abuja Summit on Roll Back Malaria, held in Abuja, endorsed a shortlist of relatively inexpensive malaria-control interventions already available and known to be effective.

44. Insecticide-treated nets (ITNs) are a low-cost and highly effective way of reducing the incidence of malaria in people who sleep under them, and they have been conclusively shown in a series of trials to substantially reduce child mortality in malaria-endemic areas of Africa. By preventing malaria, ITNs reduce the need for treatment and the pressure on health services, which is particularly important in view of the increase in drug-resistant falciparum malaria parasites. In nine countries surveyed between 1997 and 2001, a median 13 per cent of households possess one or more nets. A median 1.3 per cent of households surveyed in three countries own at least one ITN. The proportion of under-5 children sleeping under nets is also low — about 15 per cent across 28 countries surveyed. Even fewer older children (less than 2 per cent) sleep under ITNs. Only two countries, the Gambia and Sao Tome and Principe, reported ITN use rates of more than 10 per cent. While current rates of coverage are generally low, the availability and use of nets have increased appreciably over the past 10 years, particularly in countries where nets were not normally used. In the United Republic of Tanzania, for example, nets were rare in the 1980s, especially in rural areas, but ownership has increased to 63 per cent in towns and to 29 per cent in rural areas. In Zambia, the trend may be more pronounced, as preliminary survey data from 2002 show a dramatic increase in net ownership in households since 1999. Such trends are encouraging and highlight the progress that is being made.

45. The price of nets has fallen substantially as a result of greater demand, increased competition between producers, and reductions in taxes and tariffs and other obstacles to trade. In many countries, both nets and the insecticide to treat them can now be purchased in small shops and markets and even on street corners. At least five large factories in Africa are now producing nets. Almost all malaria-endemic African countries now have active programmes under way to encourage

ITN use, and most of these support a variety of different mechanisms to increase net coverage. Nevertheless, the commercial price of nets and insecticide — though falling — still puts this life-saving technology beyond the reach of the poorest groups of the population. Major efforts are now being made in at least five African countries to provide subsidized ITNs to the most vulnerable groups — young children and pregnant women.

46. Treated nets and other means of reducing mosquito bites will not totally prevent malaria. People who become ill with the disease need prompt and effective treatment to prevent the development of severe manifestations and death. Since the 1980s, parasite resistance to chloroquine, the most commonly available antimalarial drug, has emerged as a major challenge. In most countries in eastern, central, and southern Africa, chloroquine has lost its clinical effectiveness as a malaria treatment. A similar evolution is taking place, though some years later, in western Africa, and there is indirect, but compelling, evidence that this is giving rise to increasing mortality. Unfortunately, resistance to the most common replacement drug, sulfadoxine-pyrimethamine, has also emerged, especially in eastern and southern Africa.

47. Over the past few years, 13 countries in Africa have changed their national policies to require the use of more effective antimalarial treatments. Where current monotherapies are failing, WHO recommends artemisinin-based combination therapy (ACT), which is highly efficacious and promises to delay the emergence of resistance. So far, however, its use is constrained by high costs and limited operational experience in Africa. To date, four African countries have adopted ACTs as first-line treatment.

48. Recent survey data have shown that an average of 42 per cent of children under 5 years with fever were treated with an antimalarial. However, more than 80 per cent of these reported treatments were with chloroquine, so the coverage with effective treatment is likely to have been much lower. In addition, many treatments may not have been within 24 hours of onset of symptoms, and dosages may have been inadequate. These coverage estimates therefore represent an upper limit of the coverage with prompt, effective treatment, and the true value is probably much lower.

49. In nine countries where a number of national surveys have been conducted over the past 15 years, there has been an increasing trend towards use of antimalarials for treatment of febrile under-5s. These national surveys provide further proof that the use of antimalarials is widespread and common. The apparent increasing responsiveness of caretakers of young children towards accessing antimalarial treatment highlights the opportunity for achieving further improvements in access to more effective antimalarials and caretaker compliance with treatment regimens.

50. In many malaria-endemic countries the first treatment for malaria is often purchased from a shop and taken at home. Recent studies indicate that home treatment, supported by public information and pre-packaging (as an aid, to ensure that patients take the full treatment course at the right time), can help to reduce malaria mortality in children. Many countries now concentrate on making effective malaria treatment available close to the home, through support to community initiatives and engagement of drug sellers and the pharmaceutical industry. Realizing the full potential of effective treatment as a tool for reducing mortality

will require a systems approach, ensuring that effective drugs are affordable (which will often require subsidization) and that they are supported by appropriate education of formal and informal providers, as well as mothers, and by quality assurance and regulation.

51. The impact of malaria on pregnant women and their newborns can be substantially reduced by the recently recommended use of intermittent preventive treatment (IPT). This strategy provides at least two treatment doses of an effective antimalarial at routine antenatal clinics to all pregnant women living in areas at risk of endemic falciparum malaria in Africa (irrespective of whether they are actually infected with malaria or not). About two-thirds of pregnant women in Africa south of the Sahara attend clinics for antenatal care, and incorporating IPT for malaria into their routine care should be straightforward. Now an integral part of the Making Pregnancy Safer strategy, IPT has been adopted as policy by six countries to replace chemoprophylaxis; most other countries in the region are reviewing their policies in the light of the new recommendation. The beneficial effects of IPT will probably be additive to the proven benefits of insecticide-treated nets (ITNs) use by pregnant women. A comprehensive approach to the prevention and management of malaria during pregnancy therefore calls for a combination of IPT, support for ITN use, and prompt access to effective treatment. Five countries in eastern and southern Africa have recently formed a coalition to reduce the impact of malaria during pregnancy through this combined approach.

52. Areas on the northern and southern fringes of the malaria-endemic belt of Africa, as well as highland areas in many countries, are at risk of epidemic malaria. Unlike the endemic disease, epidemic malaria typically affects people of all ages and can have high case-fatality. Roll Back Malaria has been supporting efforts to improve the early recognition of, and effective and timely response to, malaria epidemics. Indoor residual spraying can play an important role in malaria vector control, especially in the control of epidemics. Malaria early-warning systems have been established in southern Africa and studies have started in Ethiopia, Kenya, Uganda, the United Republic of Tanzania, and Sudan. These efforts will improve outbreak detection and response. Further, 15 epidemic-prone countries have developed a preparedness plan of action for malaria epidemics.

VIII. Transfer of technology for production of treated nets and efforts to increase access to antimalarial medicines

53. **Long-lasting insecticidal nets**. In response to low re-treatment rates of conventional insecticide-treated nets, especially in Africa, WHO prompted industry to develop long-lasting insecticidal nets (LLINs) — ready-to-use, factory-pre-treated nets that require no further treatment during their expected lifespan of 4-5 years. This technology obviates the need for re-treatment (unlike conventional ITNs, LLINs resist washing) and reduces both human exposure (at any given time, most of the insecticide is hidden and not bioavailable) and the risk of environmental contamination.

54. Using the most recent fibre technologies, LLINs are regarded as a major breakthrough in malaria prevention. One type of LLIN is already commercially available and is recommended by WHO. A second type of LLIN, based on a different technology, has been submitted to WHO for testing and the results of these

tests are expected later in 2003. At a current price of around US$ 5 per net, LLINs are already more cost-effective than conventionally treated nets.

55. Current global production capacity of WHO-recommended LLINs is insufficient to meet expected demand. WHO, UNICEF and other RBM partners have successfully worked with a multinational company based in Japan and with a manufacturer of nets, based in Tanzania, to transfer the new technology for the production of LLINs to Tanzania. It is anticipated that the first LLINs manufactured in Africa will be available in September 2003.

56. In order to meet anticipated need for LLINs in Africa, an additional 5 to 10 factories, with a similar capacity to the factory in Tanzania, will be required at strategic locations throughout Africa within the next few years. It is likely that the lower costs of transport and labour will result in LLINs being produced in Africa at a lower cost than elsewhere in the world, thus giving an additional boost to African efforts to tackle malaria. The World Health Organization and UNICEF, together with other organizations and foundations, have commissioned the development of a business plan for the scaling-up of production of LLINs in Africa. It is anticipated that this business plan will be finalized and available in October 2003. It is proposed that a high-level conference take place at this time to bring together representatives of the African business community, representatives of African Governments, investors and companies with the necessary technology in order to start implementing the plan.

57. LLINs are produced from polymers derived from petroleum. Petroleum extraction in Africa and off Africa's shores is increasing. WHO and other RBM partners have been actively engaging petroleum extraction companies with interests in Africa to contribute to efforts to make LLINs available at the lowest possible cost, perhaps through the provision of free or low-cost polymer for their manufacture. One petroleum company has responded positively to this initiative and other petroleum companies are encouraged to consider participating.

58. **Access to effective antimalarial drugs**: Several newly developed drugs could replace malaria treatments that are no longer effective. In particular, artemisinin-based combination therapies (ACTs) have enormous potential in malaria therapy. The combination of multiple drugs enhances clinical efficacy and may delay the development of resistance of parasites. However, these drugs are not yet widely available or affordable.

59. The achievement of the Abuja target of 60 per cent coverage with prompt and effective antimalarial treatment will require more effective methods to improve delivery and compliance with recommended regimens. Measures will include full integration of malaria treatment into national health systems, improving access to effective drugs for treatment as close to the home as possible, and engaging the private sector.

60. However, currently allocated financial resources for health care in most of the low-income malaria-endemic countries will not be sufficient to respond to malaria treatment needs. Although financial support for antimalarial treatment is increasing, this has not kept pace with the costs of replacing with newer drugs (including ACTs) those that are no longer effective because of parasite resistance. African Governments and the global community are asked to address urgently the need to

allocate substantial resources for the delivery of more effective treatment regimens to those most at risk of malaria.

61. Additional strategies, such as cost containment by pooled procurement, negotiation of more favourable prices, removal of charges, tariffs and taxes, and the introduction of subsidies, are key to improving the affordability of newer and more expensive treatment regimens and to the widespread availability of these treatments to at-risk populations in Africa.

62. The World Health Organization has reached an agreement with one pharmaceutical company through which an effective artemisinin-based combination therapy (ACT) treatment can be made available for public sector use in malaria-endemic countries at cost price. This agreement has already resulted in several African countries accessing ACT treatments. Further agreements and arrangements of this type are being sought. There is currently a severe but hopefully temporary shortage of high quality drugs for other types of ACT treatments. Further efforts need to be made to engage pharmaceutical manufacturers, donor Governments and Governments of malaria-endemic countries to identify ways to increase the availability and lower the cost of such treatments.

IX. Reducing risk of malaria transmission in development planning

63. The incorporation of disease control safeguards in the development of water resources and land use is essential for the sustainable development of malaria-endemic countries. WHO has therefore enhanced its technical support to countries for effective disease management in resource development planning.

64. **Promotion of environmental management for malaria control in development**. The first volume of the World Water Development Report was published by the World Water Assessment Programme and UNESCO on behalf of 23 United Nations agencies. The report was launched at the Third World Water Forum in Kyoto, Japan in March 2003. WHO inputs into the report focused on the broad water-and-health issues and extensively covered the control of malaria transmission in water resources development and management.

65. The WHO session at the World Water Forum was programmed around health economics of water interventions for health and the effectiveness of water interventions for the control of malaria. Other major conferences where the environmental management options for malaria control were highlighted included the Congress of the International Commission on Irrigation and Drainage in Montreal Canada, in July 2002, and the Meeting of the Multilateral Initiative on Malaria in Arusha, Tanzania in November 2002.

66. **Research on environmental management for malaria control in development**. WHO has supported the establishment of the System-wide Initiative on Malaria and Agriculture (SIMA), which is a cross-cutting research programme of the Consultative Group on International Agricultural Research (CGIAR). SIMA is hosted by the International Water Management Institute. As a member of the SIMA steering committee WHO will influence the scope and priorities in multidisciplinary research in this area. The research results will provide an important basis for policy adjustment and programme development in the agriculture sector, which take into

account the need for environmental management in order to reduce malaria transmission risk in agro-ecosystems. A research programme set up in 1994 between the World Health Organization/Food and Agriculture Organization of the United Nations/United Nations Environment Programme Panel of Experts on Environmental Management for Vector Control (PEEM) and the West Africa Rice Development Association (WARDA, Bouaké), belonging to the CGIAR, is now yielding its key results, which will lead to improved disease control.

67. **Capacity-building for malaria control in development**: Health impact assessment (HIA) is a critical tool in ensuring that source reduction and environmental management measures are included in development planning and activities, especially in the case of water resources development. To assist Member States in developing HIA capacity, the WHO Water, Sanitation and Health Programme has developed and published a training manual that addresses the need for skills development for intersectoral decision-making at the national level. A training course is scheduled to be held in the Lao People's Democratic Republic in October 2003, in the context of the proposed Nam Theun 2 dam and plans have been made to support similar training in other countries.

68. **Development and implementation of affordable interventions for malaria control**: WHO has enhanced its support to countries in the implementation of integrated vector management (IVM), which aims at maximizing the combined use of different interventions that are locally effective and affordable, in order to compound the overall impact on the control of vector-borne diseases. Hence, the use of environmental management intervention for mosquito source reduction is an integral part of IVM.

69. WHO is collaborating with the United Nations Environment Programme (UNEP), under the Stockholm Convention on Persistent Organic Pollutants, to support the strengthening of national vector control programmes and infrastructure. Sixteen countries in Africa have been supported in the development and implementation of national action plans on integrated vector management (IVM), while eight others have initiated work on developing national action plans. The majority of the malaria-endemic countries have also benefited from human resource development efforts.

70. Guidelines for vector control needs assessment are being completed in their final draft form and will be field tested in five selected countries in the fourth quarter of 2003.

71. An IVM Partnership, involving malaria-endemic countries and regional and international organizations/institutions, was established under the auspices of WHO in January 2003. The Partnership has agreed on a framework to coordinate action on IVM, identified priority actions at national and international levels, and explored opportunities for mobilizing resources for the priority actions.

72. **Technical cooperation on disease control in development**: The impending conflict between the agriculture sector and the environment sector over trends in water-use patterns has important health dimensions. In recognition of the need to address this potential conflict through dialogue, at a time when both technical solutions and dependence on market forces have lost their impact, a 10 agency programme entitled Dialogue on Water, Food and Environment was established in 2002. WHO participation in this time-limited effort aims at introducing health as a

cross-cutting issue in this dialogue, and malaria is one of the key diseases that needs coverage.

X. Plans for 2005 evaluation of progress in achieving Abuja Summit objectives

73. Monitoring and evaluation of Roll Back Malaria (RBM) progress was intensified during 2002 and resulted in the Africa Malaria Report — 2003. The Report described the malaria burden and trends, policies and implementation of key interventions, constraints and obstacles to implementation and financing in Africa south of the Sahara. Data were mainly from the period 1998 to 2002 and, as such, provide a baseline against which to evaluate progress by 2005.

74. In May 2003, a Monitoring and Evaluation Reference Group (MERG) was established as an advisory body of RBM partners to work to establish robust systems to reliably monitor the malaria situation and evaluate the effectiveness of RBM interventions. WHO has been named as Chair of the Reference Group, and UNICEF is co-chair. The Reference Group established task forces on five priority issues:

(a) Malaria Mortality Trends: to address the monitoring and estimation of malaria-attributed and malaria-related mortality, for country-level impact monitoring as well as global burden estimations.

(b) Malaria Prevalence Indicator: to develop consensus on estimation of the morbidity burden of malaria and the malaria prevalence indicator of the Millennium Development Goals.

(c) Malaria-related anaemia: to address the possible use of anaemia in young children and/or pregnant women as an additional indicator of malaria burden and control impact, depending on data collection costs, and with representation from the nutritional programmatic field.

(d) Strengthening of national monitoring and evaluation capacity for RBM activities: to develop a framework for providing support at the country and subregional levels for improved monitoring and evaluation systems.

(e) Population-based surveys: to develop appropriate tools and guidelines for collection of high-quality data on core RBM indicators for use by national programmes; to explore options for additional, more regular surveys of intervention coverage in RBM priority countries, including collaboration with other planned surveys (e.g. Expanded Programme on Immunization (EPI) cluster survey); to produce and promote the universal use of a high-quality standardized focussed malaria survey module.

75. Building upon the Africa Malaria 2003 Report, a Global Malaria Report will be prepared by the summer of 2004. This next report will outline the epidemiological situation of malaria in malaria-endemic countries throughout the world, and it will report on the status of malaria interventions and policies. The progress of implementation in individual country programmes, and the support provided by the international community will also be reviewed for a group of priority countries.

76. This first Global Malaria Report will be updated on a yearly basis thereafter. Annual reports will serve as overviews on the measures taken and progress made towards the achievement of the mid-term target. Key sources on coverage with insecticide-treated nets (ITNs) and antimalarial treatment will include the Demographic and Health Surveys (DHS) conducted by Macro International with core support from USAID, and the Multiple Indicator Cluster Surveys (MICS) conducted by UNICEF. The report to the General Assembly at its sixtieth session will include the most recent information on the global malaria situation, including an update on activities related to evaluation of progress towards the mid-term targets. For evaluation of the 2005 achievements against the Abuja coverage targets, much data on these indicators will derive from the next round of MICS surveys that will take place in 2005 and for which data will be forthcoming in 2006.

77. Complementing ongoing regional efforts, a standardized mechanism for regular reporting from countries will be established to bring into closer alignment with current efforts of other major programmes (e.g. tuberculosis, HIV/AIDS, EPI).

78. As first preparatory step, the evaluation of the mid-term target will be an agenda item of the next Reference Group meeting, to be held in November 2003 in Nairobi. Representation of the African Union is being sought.

XI. Conclusions and recommendations

79. Malaria is preventable, treatable and curable. Despite the great complexity of this disease, major advances in control can be achieved immediately in many countries using existing tools. The development of new tools, such as a vaccine against malaria, deserve continuing support, but even with substantial investment and very good fortune, an effective malaria vaccine is still a number of years away. In the meantime, malaria-endemic countries require substantial support to expand the coverage of existing control tools, especially the ones with proven impact in Africa: insecticide-treated nets, prompt and effective treatment, and intermittent preventive treatment in pregnancy.

80. Progress in malaria control is being made, but it is still too slow. The establishment of the Global Fund to Fight AIDS, Tuberculosis and Malaria is a ground-breaking development as it is making it possible for African countries, for the first time ever, to access funds for malaria control, which are commensurate with the needs. As the Global Fund review and administrative processes become established, funds are now starting to flow to countries enabling them to accelerate implementation of malaria-control activities.

81. It is estimated that approximately 1 billion US dollars per year are needed to effectively combat malaria in Africa alone. Currently only about one quarter of these resources are actually available. Recent macroeconomic analyses indicate that the net return on investment in malaria control is substantial, far exceeding the initial investment, in terms of improved economic performance and reduced poverty.

It is therefore recommended that the General Assembly:

(a) **Call upon the international community to ensure that the Global Fund to Fight AIDS, Tuberculosis and Malaria receives increased funding to**

enable sound plans to control malaria in endemic countries to be implemented and sustained in a way that contributes to health system development.

(b) **Call upon the international community to continue to support RBM partner organizations, including the World Health Organization and UNICEF, as vital complementary sources of support to malaria-endemic countries to ensure that additional financial resources are effectively utilized and that progress in malaria control is well monitored and reported.**

(c) **Call upon malaria-endemic countries to increase domestic resource allocation to malaria control.**

(d) **Urges all Member States in Africa that have not yet done so to implement the recommendation of the Abuja Summit to reduce or waive taxes and tariffs for nets and other commodities needed for malaria control, both to reduce the price of nets to consumers and to stimulate free trade in insecticide-treated nets.**

(e) **Call upon the international community and particularly the international business and financial community to support ways of stimulating the development of viable factories in Africa to manufacture most of the insecticide-treated nets needed by the population of the continent each year in the near future.**

(f) **Call upon companies extracting petroleum products from Africa to consider providing polymer for the manufacture of mosquito nets at a greatly reduced price as a contribution to rolling back malaria in Africa.**

(g) **Urges the pharmaceutical industry to take note of the increasing demand for high-quality, low-cost combination treatment for malaria, particularly in Africa, and to form alliances and partnerships to help ensure that no one dies from malaria because the treatment is too expensive.**